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c) performing two-axis motion sensing on an iris-pupil boundary of the eye; and

d) redirecting the laser beam to compensate for eye movement.

2. (amended) A method of treating a cornea of an eye to effect a refractive correction of the eye, the method comprising the steps of:

B¹
a. delivering a corneal ablating laser beam to an eye;

b. moving the laser beam in a pattern about the eye along an original optical beam path; and

c. optically shifting the original beam path in accordance with a specific scanning pattern to create a resulting beam path that is parallel to the original beam path for maintaining a substantially constant angle of the beam path with respect to the eye.

5. The method recited in Claim 1, wherein the motion sensing step comprises:

a) directing a plurality of beams to impinge on the iris-pupil boundary;

b) sensing a plurality of reflected beams from the iris-pupil boundary; and

B²
c) determining eye movement from a monitoring of a movement of the sensed plurality of reflected beams.

6. The method recited in Claim 5, wherein the reflected beam sensing step comprises focusing the plurality of reflected beams onto a detector having a data rate sufficient to detect saccadic eye movement.

7. The method recited in Claim 6, wherein the data rate is at least several hundred hertz.

8. The method recited in Claim 6, wherein the detector comprises an infrared detector.

BZ 9. The method recited in Claim 2, wherein the optically shifting step comprises independently translating the laser beam along each of two orthogonal translation axes.

10. The method recited in Claim 9, wherein the translating step comprises moving an X translating mirror along an X axis and moving a Y translating mirror along a Y axis substantially orthogonal to the X axis.

11. The method recited in Claim 10, wherein the mirror translating steps are under control of a beam translation controller.

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